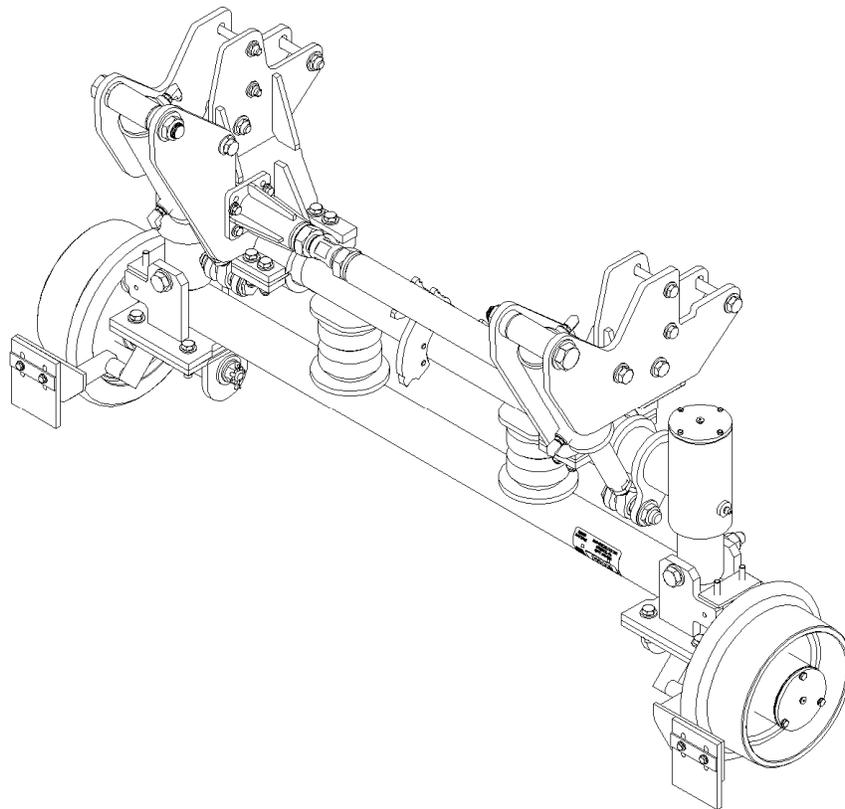


**RAFNA R-460 RAILGEAR ROTARY FRONT
2011-2018 RAM 4500/5500 4x2/4x4**



INSTALLATION / OPERATIONS / SERVICE MANUAL

INSTALLATION SAFETY PRECAUTIONS

If any installation problems are encountered, please call G&B Specialties for technical assistance before continuing with the installation process.



- Failure to heed to any of the following warnings could result in severe bodily injury and/or equipment damage.
- Read and understand this manual completely before attempting installation of the equipment.
- Installation instructions provided below only address the RAFNA railgear equipment. Applicable railway company procedures and policies must be adhered to.
- Before performing any work under the vehicle or railgear, ensure that the engine is turned off and the parking brake is set.
- Beware of all pinch points on the railgear and keep all parts of the body clear.
- Always disconnect the vehicle's battery when welding on the vehicle or railgear in order to protect the vehicle's electrical system.
- Ensure all removed components are given to the vehicle owner after the installation of the railgear. These components must be re-installed if the railgear is removed from the vehicle.
- Railway Company rules governing rail travel must be observed at all times.
- Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating (GAWR), or the wheel or tire load ratings are exceeded.

INSTALLATION OF RAILGEAR KIT

FRONT RAILGEAR INSTALLATION

The following procedure details the installation of the front railgear kit. The hardware required for this installation is listed in the table below.

Front Railgear Kit Installation Parts (R-21150-Cable Lock)

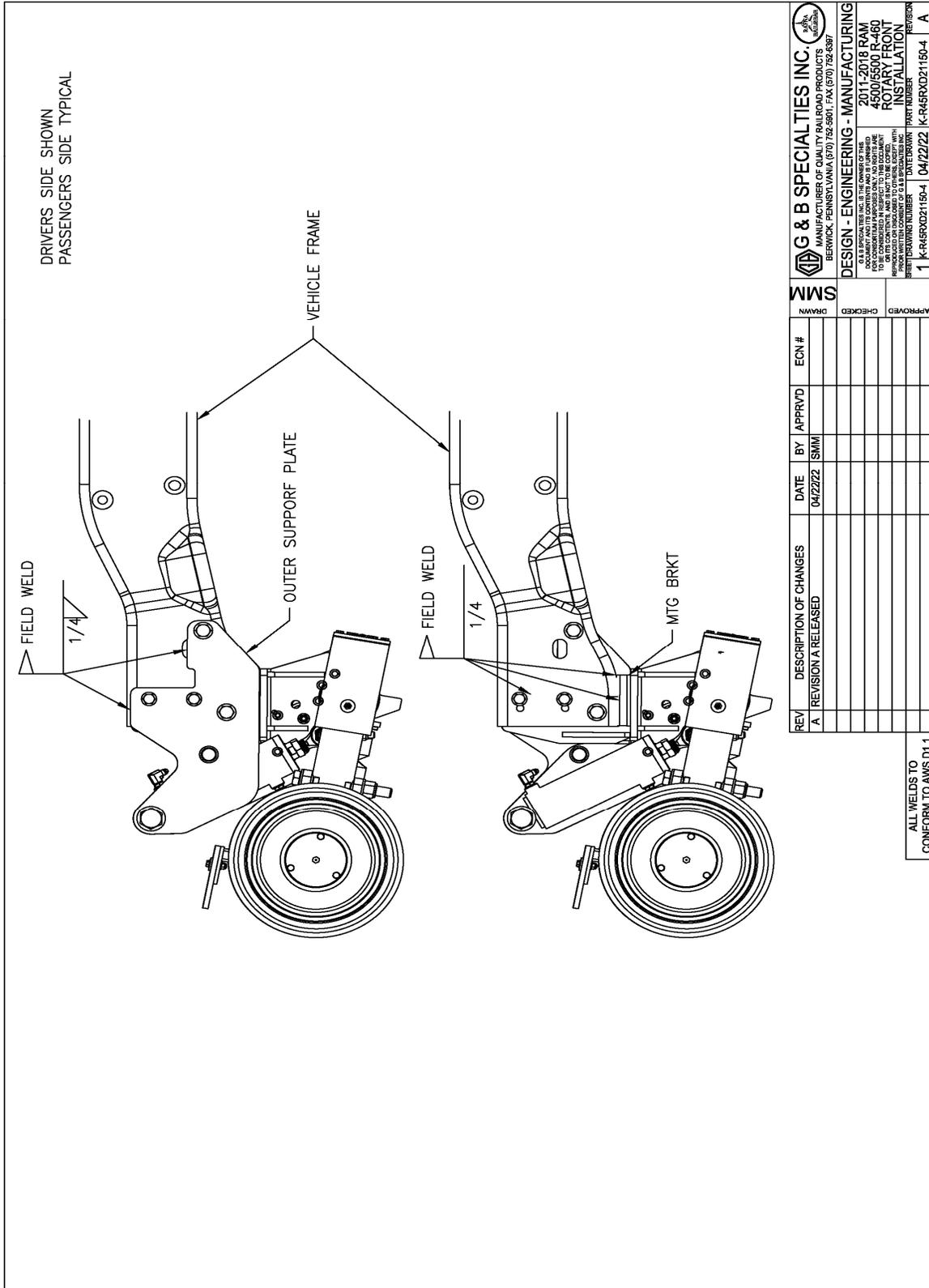
Part Number	Description	Qty
R-21150A	R-460 Rotary Front Upper Assembly	1
R-001	10" Steel Wheel Assembly	2
R-20120D	Rail Sweep, Drivers Side	1
R-20120P	Rail Sweep, Passengers Side	1
K-R45RXFCAM002A	Lock Cam Kit, Standard	1
R-990KIT-204C	Wheel Mounting Hardware	2

1. Remove the front bumper and front tow hooks if so equipped.
2. Retain the front bumper for re-installation. The front bumper will need to be modified as required.
3. Remove the Lock Cam from the upper cross frame assembly by removing the (3) 3/8" bolts securing the lock cam to the cam base.
4. Loosen, but do not remove the 3/8" bolts securing the front support beam assembly to the railgear mounting brackets. Loosen the jam nuts and turn the adjusting rod to shorten the support beam until there is approximately 1/8"-1/4" gap between the support beam mounting plates and each railgear mounting bracket.
5. Loosen, but do not remove, the (8) 1/2" bolts securing the railgear bearing caps to the upper cross frame assembly.
6. Remove the 1/2" and 5/8" bolts securing the outer support plates to the railgear mounting brackets. Do not remove the 1" bolt securing the cylinder. **Use caution as the outer support plates will swing downward and free once the 1/2" and 5/8" hardware is removed.**
7. Slide the railgear under the front frame horns and raise the unit into place. The railgear mounting brackets should sit flush with the bottom of the vehicle frame and flush to the inside of the vehicle frame.
8. The slots/holes in the railgear mounting brackets should line up with the holes in the frame.
9. Swing the outer support plates up into place and align the slots with the holes in the frame.

10. Secure the mounting brackets to the vehicle frame with the included 1/2" and 5/8" hardware. Torque to the 1/2" bolts 100 ft-lbs dry and the 5/8" bolts 150 ft-lbs dry
11. Center the upper cross frame assembly to the railgear mounting brackets and tighten the (8) 1/2" bolts securing the railgear bearing caps to the upper cross frame assembly, do not torque at this time.
12. Turn the adjusting rod to lengthen the support beam until there is no gap between the support beam mounting plates and both railgear mounting brackets. Adjust until just tight. Do not over tighten as this will force the front frame rails to spread apart. Tighten jam nuts.
13. Tighten 3/8" support beam fasteners to 40 ft-lbs dry.
14. Weld the railgear mounting brackets and outer support plates to the vehicle frame as shown.

Proceed to install the railgear hydraulic system as per the Hydraulic Kit Installation manual before continuing with the following steps.

15. Follow the Railgear Lock System Installation and adjustment Procedure detailed in the Installation section of this manual.
16. Follow the Railgear Alignment procedure detailed in the Service section of this manual.
17. Follow the Vehicle Axle Lockup Kit installation procedure detailed in the Axle Lockup Kit Installation and Operation manual.
18. Follow the Rail Sweep Adjustment procedure detailed in the Service section of this manual.
19. Torque all fasteners as detailed in the Service section of this manual.
20. Grease the railgear at all lubrication points as detailed in the Service section of this manual.
21. Modify front bumper as required.



REV	DESCRIPTION OF CHANGES	DATE	BY	APPRVD	EON #	APPROVED	CHECKED	DRAWN
A	REVISION A RELEASED	04/22/22	SMM					

ALL WELDS TO CONFORM TO AWS D1.1

G & B SPECIALTIES INC.
MANUFACTURER OF QUALITY RAILROAD PRODUCTS
BERWICK, PENNSYLVANIA 17316-9901 FAX (717) 752-6397

DESIGN - ENGINEERING - MANUFACTURING

2011-2018 RAM
4500/5500 R-460
ROTARY FRONT
INSTALLATION

SHEET/DRAWING NUMBER: 1 DATE DRAWN: 04/22/22 PART NUMBER: K-R46RXD21150-4 REVISION: A

RAILGEAR LOCK SYSTEM INSTALLATION

The railgear lock system provides an automatic mechanical pin lock for the road and rail position plus an additional over-center hydraulic lock in the rail position.

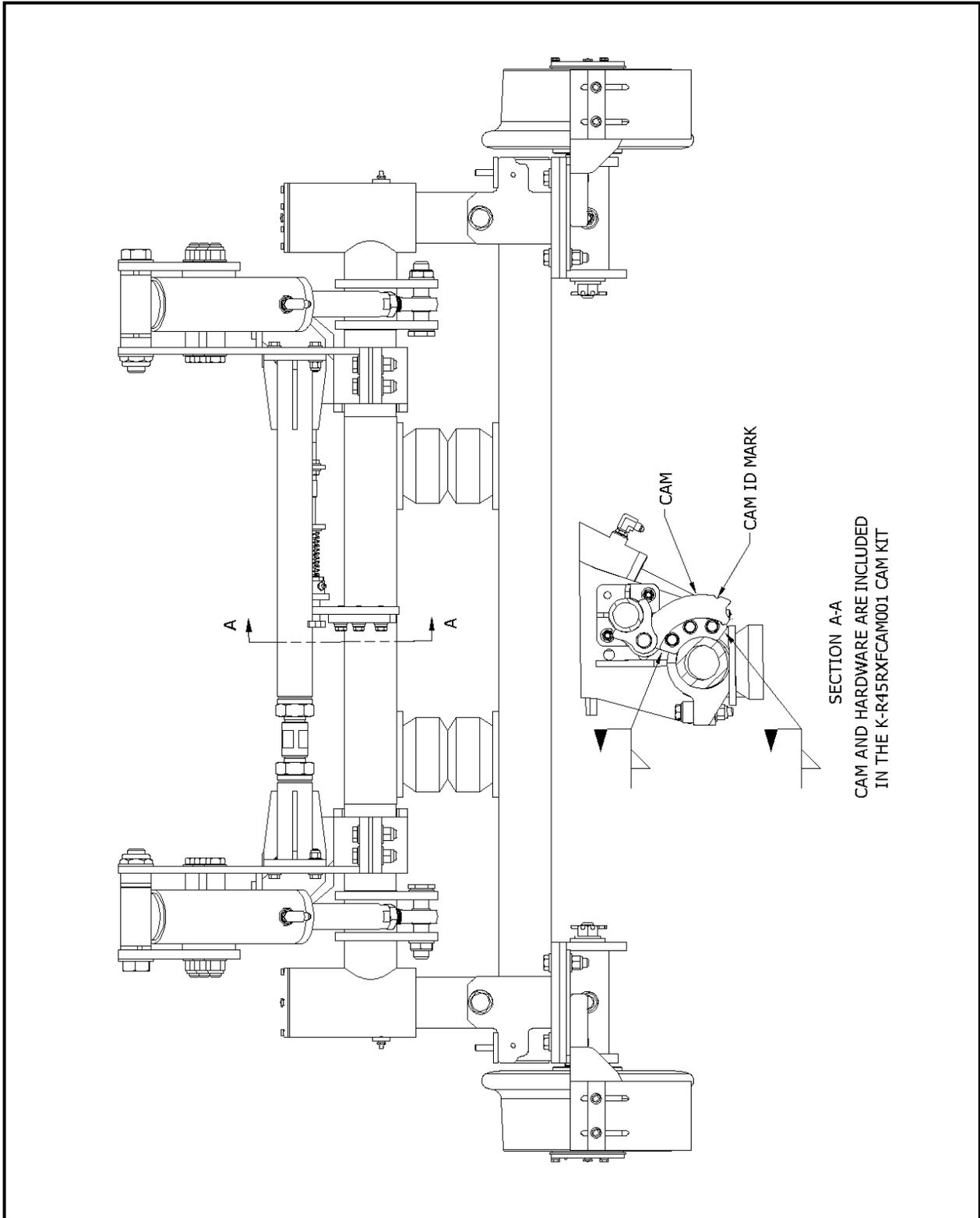
NOTE: The lock cam should not be installed until the railgear unit is installed on the vehicle and the over center adjustment has been made.

INSTALLATION (CABLE LOCK)

1. The front railgear unit is shipped with the cable actuated lock system and lock cable installed.
2. Raise/Lower the railgear to either the fully locked rail or road position.
3. Place the lock cam against the cam base as shown, with the cam ID mark facing down towards the railgear axle.
4. Loosely attach the lock cam to the cam base with the supplied 3/8" hardware.

ADJUSTMENT

1. The lock cam base is slotted to allow for easier adjustment of the lock pin/lock cam engagement.
2. With the railgear in the fully locked rail or road position, and the lock pin engaged, adjust the cam towards the lock pin. The cam should not be touching the lock pin. There should be approximately 1/8" clearance between the lock pin and the lock cam.
3. Tighten but do not torque the 3/8" fasteners.
4. Disengage the railgear mechanical locking pin by pulling on the locking cable handle or pull rod.
5. Proceed to rotate the railgear to the fully locked rail or road position. Once the gear is past the locked position, release the locking pin handle. The lock pin should ride against the side of the cam.
6. Once the gear reaches the full locked position, the pin should automatically engage the cam.
7. If the lock pin does not engage automatically, adjust the cam as necessary to allow for automatic engagement in both the road and rail position. It may be necessary to grind the cam slightly to allow for proper engagement of the lock pin.
8. Once the proper adjustment has been made, torque the 3/8" fasteners to 40 ft-lbs dry then weld the cam to the cam base as shown.



Lock Cam Installation/Adjustment

R-460 ROTARY FRONT RAILGEAR KIT OPERATION 2011-2018 RAM 4500/5500 4x2/4x4

OPERATION SAFETY PRECAUTIONS

If any operating, services or parts problems are encountered, please call G&B Specialties, Inc. for technical assistance.



CAUTION
WARNING

- Failure to heed to any of the following warnings could result in severe bodily injury and/or equipment damage.
- Read and understand this manual completely before attempting operation of the railgear equipped vehicle.
- Operating instructions provided below only address the RAFNA railgear equipment. Applicable railway company procedures and policies must be adhered to.
- Railway company rules governing rail travel must be observed at all times.
- Ensure that the position and function of all railgear controls are known before attempting operation.
- Ensure the railgear is locked in road position before starting road travel.
- Ensure all body parts and loose clothing are clear of any moving parts of the equipment.
- If misalignment of the railgear equipment is indicated, promptly perform the alignment procedure.
- Before performing any work under the vehicle or railgear, ensure the engine is turned off and the parking brake is set.
- Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.
- Always disconnect the vehicle's battery when welding on the vehicle or railgear in order to protect the vehicle's electrical system.

OPERATION OF RAILGEAR KIT

With the railgear kit installed on this vehicle, it may be operated as normal, however the vehicle has decreased ground clearance and angles of approach and departure due to the railgear. Caution must be used when operating the vehicle.

Never operate the vehicle if the Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Rating Front or Rear (GAWR), or the wheel or tire load ratings are exceeded.

Refer to the Hydraulic Kit Operation, Service, and Parts manual for information on the location and operation of the railgear hydraulic system controls.

Placing The Vehicle on Rail - To Lower the Railgear:

1. Engage the vehicle front axle lock. Follow the Axle Lockup Kit Operation procedure detailed in the Axle Lockup Kit Installation and Operation and Service manual.
2. Visually check that the vehicle front axle lock is fully engaged.
3. Disengage the railgear mechanical locking pin by pulling on the locking cable handle. Do not force the locking cable. If the lock pin cannot be disengaged, raise or lower the railgear slightly.
4. Hold the locking cable handle in the disengaged position.
5. Lower the railgear and release the locking cable handle once the railgear has rotated past the road locked position.
6. As the railgear is being deployed, it will start taking some of the vehicle's load. The railgears spring suspension should be observed compressing under this load.
7. Continue lowering the railgear until the hydraulic cylinders are fully extended and the railgear lock pin is fully engaged. In this position, the railgear should be about 2°-3° over center and the vehicle front tires should be approximately 2"-3" above the rail.
8. Visually check that the vehicle front axle lock is fully engaged.

Removing The Vehicle from Rail - To Raise the Railgear:

1. Disengage the railgear mechanical locking pin by pulling on the locking cable handle. Do not force the locking cable. If the lock pin cannot be disengaged, raise or lower the railgear slightly.
2. Hold the locking cable handle in the disengaged position.
3. Raise the railgear and release the locking cable handle once the railgear has rotated past the rail locked position.
4. Raise the railgear fully. The railgear lock pin should engage automatically.
5. Disengage the vehicle front axle lock as per the Axle Lockup Kit Operation procedure detailed in the Axle Lockup Kit Installation and Operation and Service manual.

SERVICE OF RAILGEAR KIT

The railgear kit must be serviced regularly to avoid damage to the equipment. Table 1 below provides the Recommended Service Schedule and the detailed service procedures follow.

Figure 1 provides the Non-Standard Fastener Torque Values. Table 2 provides Standard Fastener Torque Values for all other fasteners.

Grease fittings are provided at all railgear lubrication points as shown in Figure 2. The recommended lubricant for all lubrication points on this railgear is MYSTIK JT-6 LOW TEMP grease or equivalent. In cold weather areas/seasons, SHELL DARINA XL102 or equivalent may be used.

Table 1: Recommended Service Schedule

Service Required	Daily	Weekly	Monthly	3 Months	6 Months	12 months
Visually inspect the railgear for damaged or worn parts	✓	✓	✓	✓	✓	
Check for loose rail wheels and fasteners (re-torque if required)	✓	✓	✓	✓	✓	
Ensure railgear lock pin is functioning correctly	✓	✓	✓	✓	✓	
Ensure the vehicle is in good operating condition	✓	✓	✓	✓	✓	
Inspect the rail wheel flanges for wear (use Rafna wear gauge)				✓	✓	
Inspect all hydraulic components for leaks or wear	✓	✓	✓	✓	✓	
Check and adjust rail sweeps			✓	✓	✓	
Grease railgear inner and outer guide tubes		✓	✓	✓	✓	
Grease railgear inner tube lower pivot point			✓	✓	✓	
Grease railgear locking pin			✓	✓	✓	
Check and adjust rail wheel bearing end-play			✓	✓	✓	
Grease rail wheel bearings (every 3000 rail kms or 1900 rail miles)				✓	✓	✓
Check and adjust rail wheel load						✓
Check and adjust rail wheel alignment						✓
Check and repack rail wheel bearings						✓

Table 2: Standard Fastener Torque Values

Fastener Size	Fastener Torque Value (ft-lbs) Dry
1" UNC Gr. 8 Fasteners	250
¾" UNC Gr. 8 Fasteners	175
⅝" UNC Gr. 8 Fasteners	150
½" UNC Gr. 8 Fasteners	100
⅜" UNC Gr. 8 Fasteners	40
¼" UNC Gr. 8 Fasteners	12

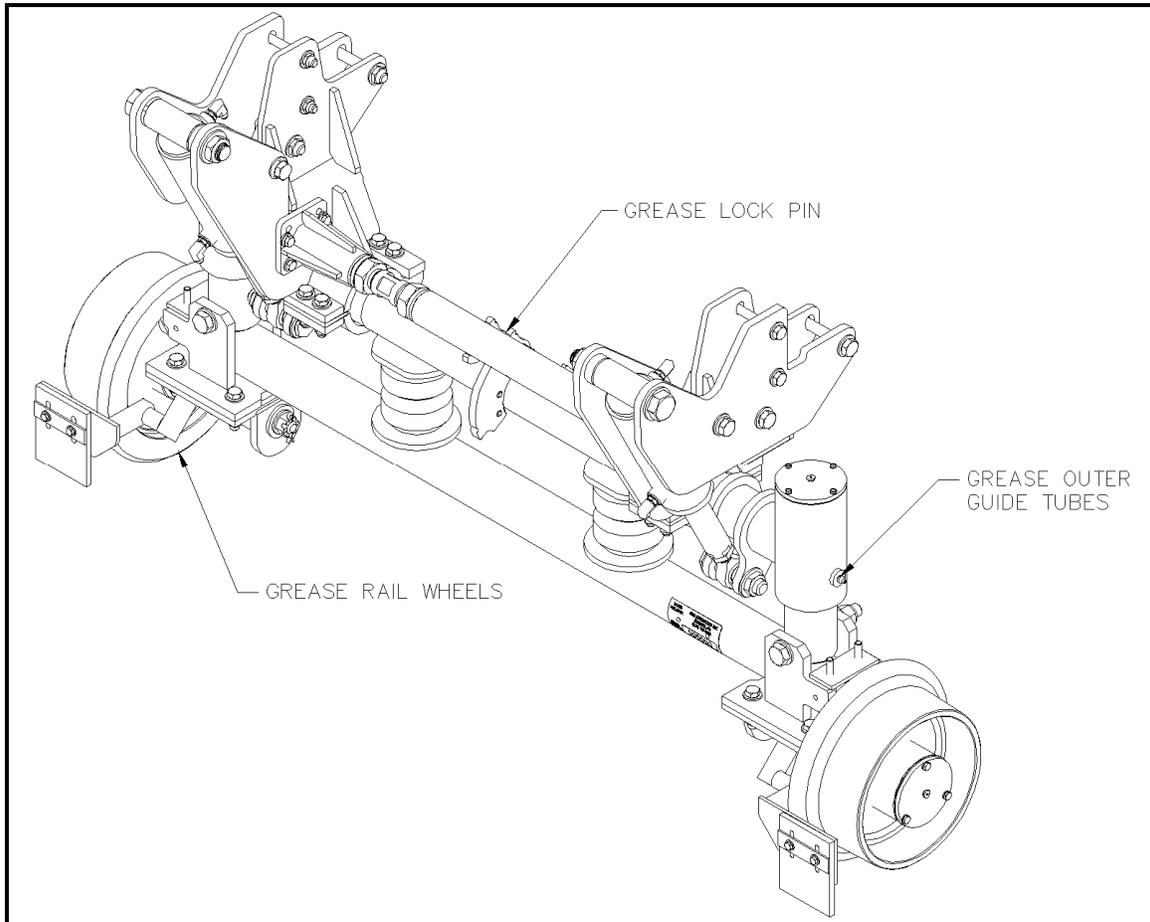


Figure 2: Railgear Lubrication Points

RAILGEAR OVER-CENTER ADJUSTMENT

The railgear is designed to rotate slightly past vertical into the rail position in order to provide a secondary safety feature in the event of a hydraulic and / or lock pin failure. This additional rotation past vertical is called the over-center angle and is adjustable via a threaded rod end on the end of the hydraulic cylinder. The location of the railgear in the road position is also a function of the over-center adjustment, however, DO NOT use the over-center adjustment to adjust the road position of the railgear. This will have adverse effects on the over-center safety feature.

The over-center angle is defined as the angle between the vertical edge of the outer guide tubes and the vertical. It can be measured with the vehicle on a level section of rail with the railgear in the rail position using an angle meter. The over-center angle must be between 2°-3° past vertical. If this is not the case, adjust as follows:

1. Unload the railgear hydraulic cylinder by raising the railgear just off rail.
2. Loosen the jam nut on the hydraulic cylinder rod end and adjust the rod end out to increase the over-center angle or in to decrease the over-center angle. Note that the cylinder rod can be turned instead of turning the rod end.
3. Re-deploy the railgear to the rail position and re-check the over-center angle. Re-adjust as necessary.
4. Tighten the jam nut on the hydraulic cylinder rod end.
5. Repeat process for other cylinder.
6. Both cylinders should be adjusted so that both cylinders have the same amount of stroke over center. This will help to eliminate any binding or twisting of the railgear when deployed to the rail position.
7. Following the over-center angle adjustment, the railgear may contact the vehicle if not enough clearance was left during installation. Check the railgear clearance to all vehicle components throughout the full range of railgear and railgear suspension movement. If there is interference with the vehicle bumper, it can be trimmed and reinforced as required.
8. With the railgear fully raised to the road position, ensure that the railgear lock pin properly engages the lock cam. It may be necessary to adjust and/or grind the lock cam slightly to ensure proper fit.

RAIL WHEEL BEARING ADJUSTMENT

The rail wheel bearings require periodic adjustment in order to keep the endplay within specification. If the rail wheel bearings are not correctly adjusted, failure may occur and will not be covered under the railgear warranty. Check and adjust the bearing endplay with the railgear in the road position and with the rail wheels free to turn.

Use a magnetic base dial gauge to measure the endplay of each rail wheel bearing. The bearing endplay must be between 0.001" and 0.005". If this is not the case, adjust as follows:

1. Remove the rail wheel hubcap and gasket by removing the three 1/4" bolts and 1/4" lock washers. Remove and discard the cotter pin from the 3/4" slotted spindle nut.
2. Ensure the wheel-bearing cavity is full of grease.
3. While rotating the rail wheel forward, torque the spindle nut to 20 ft-lbs. Then loosen the spindle nut and re-torque it to 6 ft-lbs. Re-check and re-adjust the bearing endplay if required. If no torque wrench is available, tighten the spindle nut until the rail wheel is difficult to turn by hand. Then loosen the spindle nut and retighten it just until no loose can be felt in the bearings. Re-adjust the bearing endplay with a torque wrench as soon as possible.
4. Install a new 3/16" x 2" long cotter pin through the spindle nut. Tighten the spindle nut slightly if needed to insert the cotter pin.
5. Re-install the hubcap and gasket using the 1/4" bolts and new 1/4" split lock washers. Blue Loctite can be used on the bolts as an added safety measure. Tighten and torque the 1/4" fasteners to 12 ft-lbs dry. Do not over torque.

RAIL SWEEP ADJUSTMENT

The distance between the rail sweep rubber and the rail is adjustable and should be maintained at approximately 1/8". To adjust the rail sweep rubber, with the railgear in the rail position, loosen the two 1/4" fasteners that secure the rail sweep rubber to the rail sweep bracket. Slide the rail sweep rubber up or down for the correct clearance. Tighten and torque the 1/4" fasteners to 12 ft-lbs dry. Do not over torque.

RAILGEAR ALIGNMENT

The railgear must be correctly aligned to perform properly, safely, and avoid excessive wear and derailment. The rail wheels can be independently aligned for toe-in/toe-out and the railgear can be adjusted side to side (laterally) on the vehicle. A parallel line system and the following procedure should be used to perform the railgear alignment.

The rail wheel loads should be checked and adjusted, the vehicle should have had a four-wheel alignment (with the complete railgear package installed on the vehicle and any suspension modifications done) and the tires should be properly inflated prior to performing the railgear alignment.

The railgear alignment is done with the vehicle on a straight and level section of rail with the railgear in the rail position and the vehicle wheels pointing straight ahead. The individual rail wheel alignment should be done first, followed by the lateral alignment of the railgear.

Each rail wheel is aligned by loosening the four 1/2" fasteners that secure it to the railgear axle. The rail wheel is then turned into alignment. The four 1/2" fasteners should then be tightened and torqued to 100 ft-lbs dry. Do not over torque.

Lateral alignment is achieved by sliding the lower half of the railgear unit in the pivot bearings. It may be necessary to loosen the bearing caps slightly to ease the adjustment process. Once the railgear is in alignment, tighten the bearing caps to 40 ft-lbs dry. Do not over torque.

Ensure that the railgear over-center adjustment has been made before continuing

Once the alignment is complete, it will be necessary to install the rotation stops. The rotation stops also act as a type of shaft collar to keep the railgear from losing lateral alignment. Rotate the railgear down to the rail position, place the rotation stops on the upper axle as shown and weld in place.

Following the railgear alignment, the railgear may contact the vehicle if not enough clearance was left during installation. Check the railgear clearance to all vehicle components throughout the full range of railgear and railgear suspension movement. If there is interference with the vehicle bumper, it can be trimmed and reinforced as required. If there is interference with the vehicle exhaust system, it can be modified to fit, ensuring any exhaust system modifications conform to applicable laws and regulations. If there is interference with any other vehicle components, please call G&B Specialties, Inc. for technical assistance.

ITEM	PART No.	DESCRIPTION OF ITEM(PART)	QTY.
1	-	PASSENGERS SIDE MOUNTING BRACKET	REF
2	-	UPPER AXLE	REF
3	R-20101	ROTATION STOP	2
4	-	PASSENGERS SIDE BEARING HOUSING	REF
5	-	STOP PLATE	REF

*PASSENGERS SIDE SHOWN
DRIVERS SIDE TYPICAL *

REV	DESCRIPTION OF CHANGES	DATE	BY	APPRVD	ECON #
A	REVISION A RELEASED	05/02/22	SMM		

G & B SPECIALTIES INC. BERWICK, PENNSYLVANIA (570) 752-5901 FAX (570) 752-6397	AM DRAWN	APPROVED CHECKED
DESIGN - ENGINEERING - MANUFACTURING		
ALL DIMENSIONS ARE IN THE HAND OR THE FOR CONFORMANCE WITH THE DRAWING. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE TO BE CONSIDERED AS THE FINAL DIMENSIONS. ALL DIMENSIONS ARE TO BE TO UNLESS OTHERWISE SPECIFIED. DATE DRAWN: 05/02/22 PART NUMBER: K-R46RXD21150-5 REVISION: A		

NOTES:

- RAILGEAR SHOULD BE IN THE LOCKED RAIL POSITION AND 2'-3" OVER CENTER.
- ROTATION STOP SHOULD BE FLUSH AGAINST BEARING HOUSING AND THE STOP PLATE.
- WELD ROTATION STOP TO UPPER AXLE.

ALL WELDS TO CONFORM TO AWS D1.1

RAFNA RAILGEAR ALIGNMENT RACK DATA

GAS OR DIESEL _____ VIN# _____

VEHICLE MAKE: _____ VEHICLE MODEL: _____ VEHICLE YEAR: _____
 DOOR STICKER GVWR: _____ DOOR STICKER GAWR FRT: _____ DOOR STICKER GAWR RR _____
 RAILGEAR S/N: FRT _____ RR _____ VEHICLE UNIT #,S/N: _____
 RAILGEAR TYPE: _____ INSTALLER: _____ DATE: _____

SET UP PARALLEL STRING LINES
 A & B MUST BE EQUAL WITHIN 1/32"
 C & D MUST BE EQUAL WITHIN 1/32"

ADJUST STRING LINES AROUND VEHICLE
 E, F, G, & H MUST BE EQUAL WITHIN 1/16"
 I, J, K, & L MUST BE EQUAL WITHIN 1/16"
 (E, F, G, & H MAY NOT EQUAL I, J, K, & L)

ADJUST RAIL WHEEL ALIGNMENT
 M & O MUST BE EQUAL WITHIN 1/16"
 N & P MUST BE EQUAL WITHIN 1/16"
 Q & S MUST BE EQUAL WITHIN 1/16"
 R & T MUST BE EQUAL WITHIN 1/16"

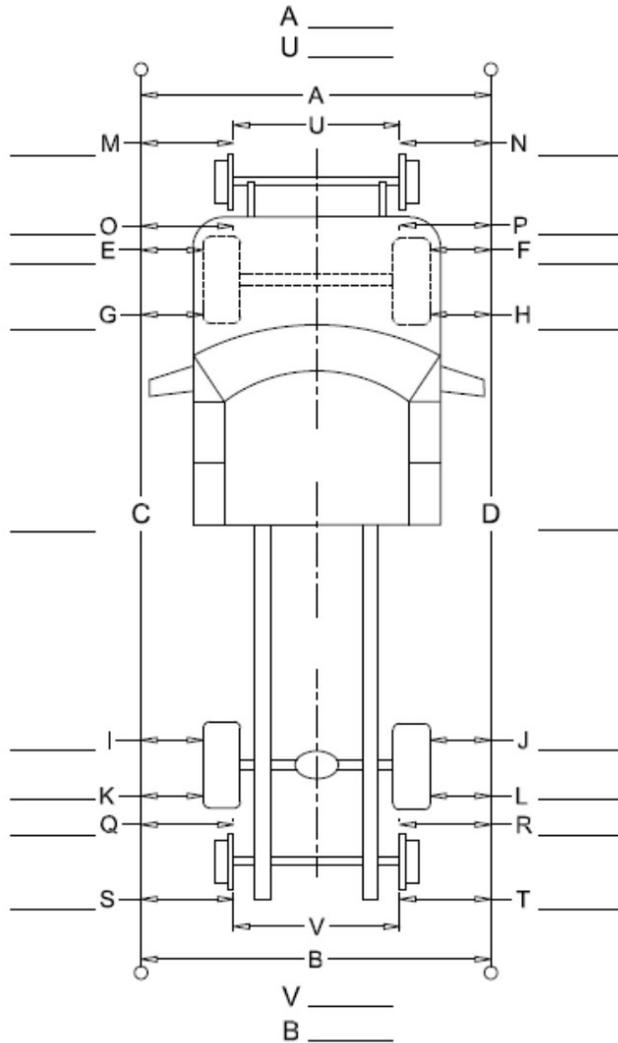
ADJUST RAILGEAR LATERAL ALIGNMENT
 M & O MUST EQUAL N & P WITHIN 1/8"
 Q & S MUST EQUAL R & T WITHIN 1/8"

ENSURE THAT U & V ARE BETWEEN
 53- 7/16" AND 53- 9/16"

OVER-CENTER ANGLE (DEGREE)
 FRONT _____
 REAR _____

RAIL WHEEL LOADS (LBS)
 LEFT FRONT _____ RIGHT FRONT _____
 LEFT REAR _____ RIGHT REAR _____

RAIL WHEEL FLANGE TO GROUND CLEARANCE
 LEFT FRONT _____ RIGHT FRONT _____
 LEFT REAR _____ RIGHT REAR _____



MOUNTING HEIGHT FRONT: _____ MOUNTING HEIGHT REAR: _____

STOCK TURNING DIAMETER: _____ MODIFIED TURNING DIAMETER: _____

OEM: VEHICLE WEIGHT: _____ FRONT GAWR: _____ REAR GAWR: _____

MODIFIED: VEHICLE WEIGHT: _____ FRONT GAWR: _____ REAR GAWR: _____

FAX COMPLETED FORM TO JAKE SANUTE AT FAX # 570-802-0491

MAY 31, 2018 REV "D"

RAFNA RAILGEAR PORTABLE ALIGNMENT DATA

GAS OR DIESEL _____ VIN# _____

VEHICLE MAKE: _____ VEHICLE MODEL: _____ VEHICLE YEAR: _____

DOOR STICKER GVWR: _____ DOOR STICKER GAWR FRT: _____ DOOR STICKER GAWR RR _____

RAILGEAR S/N: FRT _____ RR _____ VEHICLE UNIT #,S/N: _____

RAILGEAR TYPE: _____ INSTALLER: _____ DATE: _____

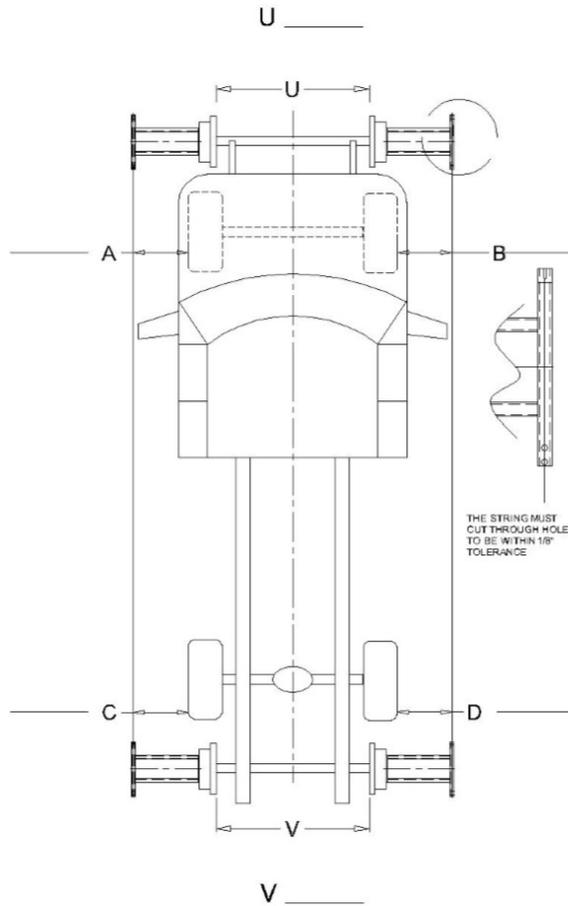
ADJUST RAILGEAR LATERAL ALIGNMENT
A MUST EQUAL B WITHIN 1/8"
C MUST EQUAL D WITHIN 1/8"

ENSURE THAT U & V ARE BETWEEN
53—7/16" AND 53—9/16"

OVER-CENTER ANGLE (DEGREE)
FRONT _____
REAR _____

RAIL WHEEL LOADS (LBS)
LEFT FRONT _____ RIGHT FRONT _____
LEFT REAR _____ RIGHT REAR _____

RAIL WHEEL FLANGE TO GROUND CLEAR-
ANCE
LEFT FRONT _____ RIGHT FRONT _____
LEFT REAR _____ RIGHT REAR _____



MOUNTING HEIGHT FRONT: _____ MOUNTING HEIGHT REAR: _____

STOCK TURNING DIAMETER: _____ **MODIFIED** TURNING DIAMETER: _____

OEM: VEHICLE WEIGHT: _____ FRONT GAWR: _____ REAR GAWR: _____

MODIFIED: VEHICLE WEIGHT: _____ FRONT GAWR: _____ REAR GAWR: _____

FAX COMPLETED FORM TO JAKE SANUTE AT FAX # 570-802-0491

MAY 31, 2018 REV B

WHEEL WEAR STANDARDS AND RECOMMENDATIONS

At the present time, G&B produces 8", 10", 12", 14", and 16" steel wheels. Each size has a different flange and tread thickness, which dictates the allowable wear. Although the following numbers are recommended limits, risk of failure is increased when not followed. Rail gauge can be supplied by G&B Specialties for 8", 10", 12", 14", and 16" rail wheels. They are used as go/no go gauges. When placed on rail wheels they will indicate how much wear is still permissible or if the rail wheels need to be replaced.

The gauge for the R-460 model railgear can be ordered using the following part number; S-001200

- Rail wheel failure can result in equipment damage or failure, personal injury or death.

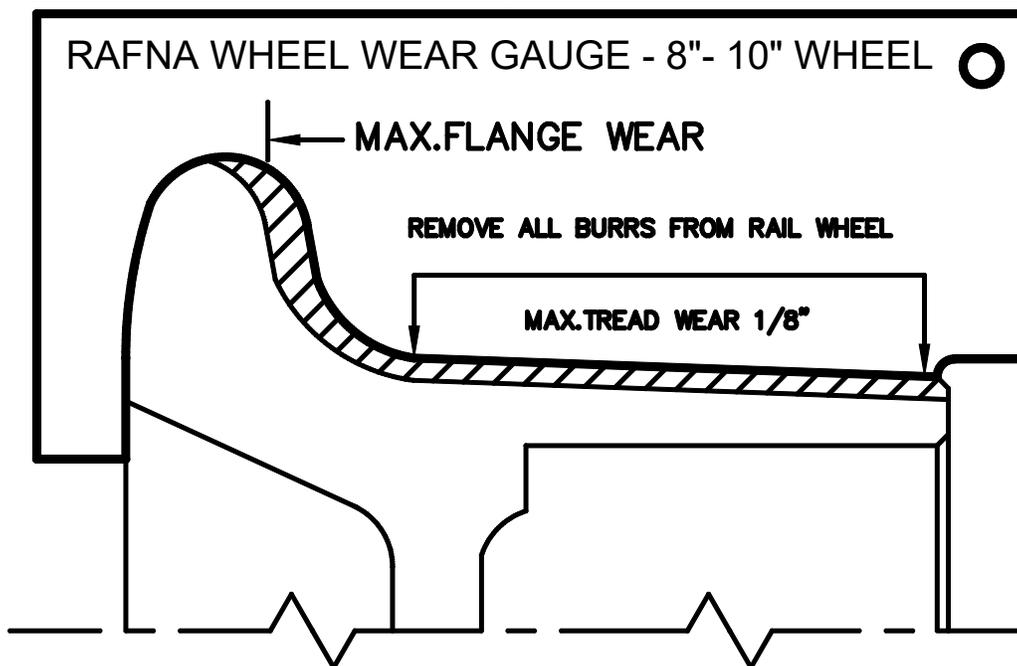
Flange Wear Limits:

The maximum flange wear is indicated on the rail wheel gauge. When the gauge is placed on the rail wheel, if a gap is seen between the gauge and the maximum flange wear line, the rail wheel needs to be replaced.

Tread Wear Limits:

For tread wear, use the following chart in conjunction with the appropriate rail wheel gauge.

NOMINAL RAIL WHEEL DIAMETER (INCHES)	MIN. ALLOWABLE WHEEL DIAMETER (INCHES)
10	9 3/4



PARTS OF RAILGEAR KIT

BILL OF MATERIAL/PARTS LIST		
ITEM	QTY	DESCRIPTION
1	1	R-21150A UPPER UNIT ASSY
2	1	K-R46RXFCAM002A CAM KIT
3	2	R-001 10 STEEL WHEEL
4	1	R-2120D RAIL SWEEP
5	1	R-2120P RAIL SWEEP
6	16	FWASHER 1/2" TYP-E GR.8
7	9	M/LOCK NUT 1/2" UNC GR.8
8	4	H.H.C.S. 1/2" UNC GR.8 X 2"
9	1	R-LABEL001 PULL-TO-UNLOCK PLACARD

ESTIMATED INSTALL WEIGHT: 480 lbs
WITH BRAKES: 525 lbs

FRONT OF VEHICLE
(17.00)
(34.5)

SECTION A-A

CAM AND HARDWARE ARE INCLUDED IN THE K-R46RXFCAM002A CAM KIT

REV/DESCRIPTION OF CHANGES	DATE	BY	APPRVD	ECN #
A REVISION A RELEASED	05/02/22	SMM		

ALL WELDS TO CONFORM TO AWS D1.1

APPROVED	CHECKED	DRAWN
JMP	JMP	SMM

DESIGN - ENGINEERING - MANUFACTURING
2011-2018 RAM
R-460 ROTARY
FRONT CABLE

DATE/DRAWN: 05/02/22
PART NUMBER: R-21150MAN
REV: 05/02/22 R-21150

BILL OF MATERIAL/PARTS LIST		DESCRIPTION
ITEM	QTY	PART NUMBER
31	2	H.H.C.S
32	4	FWASHER
33	2	JAM NUT
34	4	FWASHER
35	4	FWASHER
36	2	NYLOCK NUT
37	2	JAM NUT
38	2	H.H.C.S
39	12	FWASHER
40	4	NYLOCK NUT
41	4	H.H.C.S
42	26	FWASHER
43	12	NYLOCK NUT
44	4	H.H.C.S
45	4	H.H.C.S
46	8	L'WASHER
47	8	FWASHER
48	4	NYLOCK NUT
49	4	H.H.C.S
50	4	H.H.C.S
51	4	L'WASHER
52	4	H.H.C.S
53	4	H.H.C.S
54	4	L'WASHER

AMT
G & B SPECIALTIES INC.
MANUFACTURER OF QUALITY RAILROAD PRODUCTS
BERWICK, PENNSYLVANIA (717) 752-5901, FAX (717) 752-6397

DESIGN - ENGINEERING - MANUFACTURING

R-460 ROTARY FRONT UPPER ASSY, 1 CABLE

DATE: 04/04/11
PART NUMBER: R-21150A
REV: 04/04/11 | R-21150A

APPROVED: _____
CHECKED: _____
DRAWN: _____

ECN #
ECON-17-188
ECON-22-115

BY: AML
DATE: 04/04/11

APPROVED: _____
CHECKED: _____
DRAWN: _____

DATE: 05/01/17
BY: SMMI

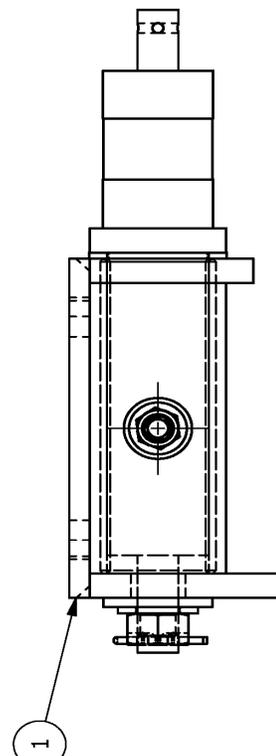
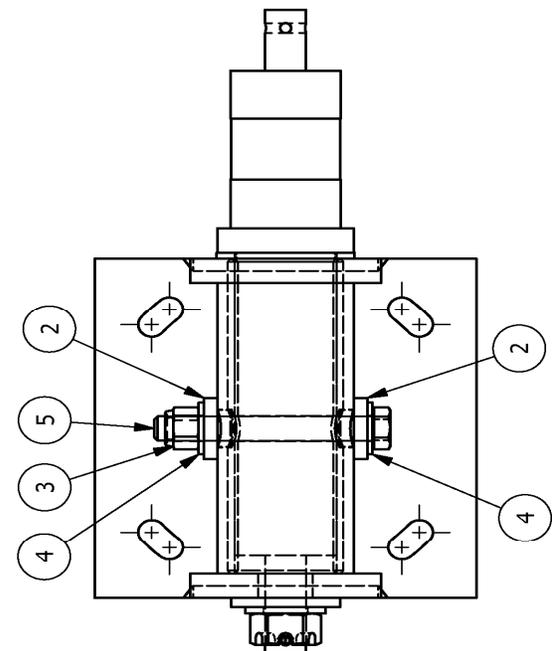
DATE: 03/17/22
BY: SMMI

DESCRIPTION OF CHANGES
A REVISION 1 RELEASED
E ITEM 4 WAS R20074
F BORDER, REMOVED STUDS ON AXLE

ALL WELDS TO CONFORM TO AWS D1.1

TORQUE BEARING CAPS TO 45 FT-LBS

BILL OF MATERIAL/PARTS LIST			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	R-001C	10" WHEEL SUN-ASSEMBLY MODIFICATION	1
2	R-6505	SPINDLE BUSHING	2
3	NULOCK NUT	1/2"-13, GR.8	1
4	F'WASHER	1/2" TYPE-A, GR. 8	3
5	H.H.C.S.	1/2" UNC GR.8 x 4.00" Lg.	1

REV/DESCRIPTION OF CHANGES	DATE	BY	APPRVD	ECN #	DRAWN	
A REVISION A RELEASED	12/01/06	AML	JMP	ECN-21-456	AML	
B UPDATED BORDER	07/16/21	SMM				
					CHECKED	APPROVED

 G & B SPECIALTIES INC. MANUFACTURER OF QUALITY RAILROAD PRODUCTS BERWICK, PENNSYLVANIA (717) 752-5901, FAX (717) 752-6397	
DESIGN - ENGINEERING - MANUFACTURING 10" WHEEL SUB ASSY, MODIFIED	
ALL WELDS TO CONFORM TO AWS D1.1	SHEET/DRAWING NUMBER: 12/01/06R-001D PART NUMBER: B

BILL OF MATERIAL/PARTS LIST			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	R-20121D-A	MOUNTING BRACKET, DRIVERS SIDE	1
2	R-2411	RUBBER SWEEP	1
3	R-5561	SWEEPER PLATE	1
4	H.H.C.S.	1/4" X 1 1/4" LG. UNC, GR.8	2
5	FWASHER	1/4" TYPE A, GR. 8	4
6	NYLOCK NUT	1/4" UNC, GR.& STD NYLOCK	2

NOTES:

- ASSEMBLE AS SHOWN
- HARDWARE KIT REF: R-990KIT-007
- APPROX. WEIGHT: 3.0 LBS

REV/DESCRIPTION OF CHANGES	DATE	BY	APPRVD	ECN #	DRAWN	CHECKED	APPROVED
A REVISION A RELEASED	02/19/09	JL					
B REVISION B RELEASED	12/10/09	AMIL		ECN-09-528			
C GENERAL UPDATE	03/11/20	SDB	SDB	ECN-20-135			

G & B SPECIALTIES INC. MANUFACTURER OF QUALITY RAILROAD PRODUCTS BERWICK, PENNSYLVANIA 670752-5901, FAX 670752-6397	DRIVE SIDE RAIL SWEEP ASSEMBLY
<small>AS A SPECIALTY ITEM, THE OWNER OF THIS DRAWING ASSUMES ALL RESPONSIBILITY FOR CONSTRUCTION AND MODIFICATION. NO PARTS OR MATERIALS SHALL BE USED UNLESS SPECIFICALLY IDENTIFIED IN THIS DRAWING. ALL DIMENSIONS ARE TO UNLESS OTHERWISE SPECIFIED. THIS DRAWING IS THE PROPERTY OF G & B SPECIALTIES INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN CONSENT OF G & B SPECIALTIES INC.</small>	
SHEET/DRAWING NUMBER: 1 R201200	PART NUMBER: R-460 FRONT
DATE/DRAWN: 02/19/09	REV/REV: C

ALL WELDS TO CONFORM TO AWS D1.1

